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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/765,457	01/26/2004	Markus Forsthuber	22771	8602

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THE FIRM OF KARL F ROSS
5676 RIVERDALE AVENUE
PO BOX 900
RIVERDALE (BRONX), NY 10471-0900

EXAMINER

PARSLEY, DAVID J

ART UNIT	PAPER NUMBER
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3643

DATE MAILED: 06/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/765,457

Applicant(s)

FORSTHUBER, MARKUS

Examiner

David J. Parsley

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 April 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) 9-13 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) 7-8 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 1-26-04, 7-21-04
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

Detailed Action

Election/Restrictions

1. Applicant's election with traverse of Group I claims 1-8 in the reply filed on 4-13-05 is acknowledged. The traversal is on the ground(s) that a materially different apparatus to that of claim 1 cannot be performed with another different process than that of claim 9. This is not found persuasive because it is deemed that the method of making a heating element can be performed with another materially different apparatus than that of claim 1 such as forming a metallic coil with electrical connections.

The requirement is still deemed proper and is therefore made FINAL.

Claims 9-13 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim.

Applicant timely traversed the restriction (election) requirement in the reply filed on 4-13-05.

Priority

2. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Austria on 1-28-03. It is noted, however, that applicant has not filed a certified copy of the patent application as required by 35 U.S.C. 119(b).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-2 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,640,718 to Duguet et al. in view of U.S. Patent No. 6,289,813 to Duguet et al.

Referring to claim 1, Duguet et al. '718 discloses a heating element for igniting a pyrotechnic charge comprising, a base body – at 17,25,26, a structured strip shaped resistance layer – at 29,30, and contact fields – at 32,33, overlapping at ends thereof – see for example figure 3, for applying a current pulse to the heating element, wherein the heating element has a mass, specific resistance and a specific heat – see for example figures 1-3. Duguet et al. '718 does not disclose the specific resistance is 1×10^{-6} to 2×10^{-6} . Duguet et al. '813 does disclose the specific resistance is 1×10^{-6} to 2×10^{-6} – see for example column 2 lines 42-45. Therefore it would have been obvious to one of ordinary skill in the art to take the device of Duguet et al. '718 and add the specific resistance being 1×10^{-6} to 2×10^{-6} of Duguet et al. '813, so as to allow for the heating element to be quick acting. Duguet et al. '718 further does not disclose the mass of the heating element is 1×10^{-9} kg to 4.0×10^{-9} kg and further does not disclose the specific heat capacity is 100 W/(kg K) to 400 W/(kg K). However, these limitations are found through experimentation and it would have been obvious to one of ordinary skill in the art to take the device of Duguet et al. '718 and add the mass of the heating element being 1×10^{-9} kg to $4.0 \times$

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10^{-9} kg and the specific heat capacity being 100 W/(kg K) to 400 W/(kg K) so as to allow for the device to be quick acting and durable.

Referring to claim 2, Duguet et al. '718 as modified by Duguet et al. '813 does not disclose the heating element has a cross sectional area of $3.5 \times 10^{-10} \text{ m}^2$ to $7.0 \times 10^{-10} \text{ m}^2$. However, this is a limitation found through experimentation and it would have been obvious to one of ordinary skill in the art to take the device of Duguet et al. '718 as modified by Duguet et al. '813 and add the heating element having a cross sectional area of $3.5 \times 10^{-10} \text{ m}^2$ to $7.0 \times 10^{-10} \text{ m}^2$ so as to allow for the heating element to be of sufficient size for causing ignition and making the heating element durable.

Claims 3 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Duguet et al. '718 as modified by Duguet et al. '813 as applied to claim 1 above, and further in view of U.S. Patent No. 6,269,745 to Cieplik et al.

Referring to claim 3, Duguet et al. '718 as modified by Duguet et al. '813 does not disclose the resistance layer is composed of a sintered Ag/Pd resistance paste or a sintered Ag/Au/Pd resistance paste containing 30 to 50 mass% Ag and 35 to 50 mass% Pd, or sintered Pt/W resistance paste containing 70 to 90 mass% Pt and 5 to 20 mass% W. Cieplik does disclose a heating element made of a paste – see for example column 2 lines 50-62. Duguet et al. '718 as modified by Duguet et al. '813 and Cieplik does not disclose the paste is sintered Ag/Pd, Ag/Au/Pd or Pt/W. However, these limitations are found through experimentation and it would have been obvious to one of ordinary skill in the art to take the device of Duguet et al. '718 as modified by Duguet et al. '813 and Cieplik and add the paste being sintered Ag/Pd, Ag/Au/Pd or Pt/W, so as to allow for the device to quickly ignite and be made of a smaller geometry.

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Referring to claim 6, Duguet et al. '718 as modified by Duguet et al. '813 does not disclose the contact fields are composed of sintered AgPd or AgPt thick-layer conductor paste with Pd or Pt proportions between 1 and 10 mass%. Cieplik does disclose the heating element can be made of a paste as seen in column 2 lines 50-62. Duguet et al. '718 as modified by Duguet et al. '813 and Cieplik does not disclose the paste is AgPd or AgPt with Pd or Pt proportions between 1 and 10 mass%. However, these limitations are found through experimentation and it would have been obvious to one of ordinary skill in the art to take the device of Duguet et al. '718 as modified by Duguet et al. '813 and Cieplik and add the paste being AgPd or AgPt with Pd or Pt proportions being 1 to 10 mass%, so as to allow for the device to quickly ignite and to be made of a smaller geometry.

Claims 4-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Duguet et al. '718 as modified by Duguet et al. '813 as applied to claim 1 above, and further in view of U.S. Patent No. U.S. Patent No. 6,324,979 to Troianello.

Referring to claims 4-5, Duguet et al. '718 as modified by Duguet et al. '813 does not disclose the base body is composed of a high temperature resistant glass or glass ceramic or ceramic with a thermal conductivity of at most 2 W/(m K) and a heat barrier is applied to the base body which is comprised of glass or glass-ceramic layer of thickness of 20 to 80 micrometers and a thermal conductivity of at most 1.5 W/(m K) . Troianello does disclose the base body is composed of a high temperature resistant glass or glass ceramic or ceramic with a thermal conductivity – see for example columns 1-8 and a heat barrier – at 16, applied to the base body made of glass or glass-ceramic – see for example figure 1 and column 4. Therefore it would have been obvious to one of ordinary skill in the art to take the device of Duguet et al.

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'718 as modified by Duguet et al. '813 and add the base body and heat barrier of glass or ceramic of Troianello, so as to allow for the device to automatically ignite quickly. Duguet et al. '718 as modified by Duguet et al. '813 and Troianello does not disclose the thermal conductivity of the base body is 2 W/(m K) and the thermal conductivity of the heat barrier is 1.5 W/(m K) .

However, these are limitations that are found through experimentation and it would have been obvious to one of ordinary skill in the art to take the device of Duguet et al. '718 as modified by Duguet '813 and Troianello and add the thermal conductivity of the base body being 2 W/(m K) and the thermal conductivity of the heat barrier being 1.5 W/(m K) , so as to allow for the device to automatically ignite quickly.

Allowable Subject Matter

4. Claims 7-8 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following patents are cited to further show the state of the art with respect to heating elements in general:

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U.S. Pat. No. 3,753,403 to Menichelli – shows heating element

U.S. Pat. No. 4,522,665 to Yates, Jr. et al. – shows heating element

U.S. Pat. No. 4,893,563 to Baginski – shows heating element

U.S. Pat. No. 6,341,562 to Brisighella – shows heating element

U.S. Pat. No. 6,343,000 to Yokoyama et al. – shows heating element

U.S. Pat. No. 6,408,758 to Duguet – shows heating element

U.S. Pat. No. 6,666,140 to Roller – shows heating element

EP Pat. No. 0112254 – shows heating element

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David J. Parsley whose telephone number is (571) 272-6890. The examiner can normally be reached on 9hr compressed.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Poon can be reached on (571) 272-6891. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

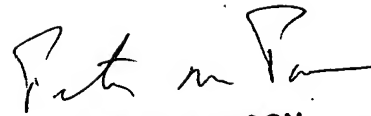
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David Parsley
Patent Examiner
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PETER M. POON
SUPERVISORY PATENT EXAMINER

6/10/05